

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of

A National Broadband Plan for Our Future

Comment Sought on Defining “Broadband” NBP Public  
Notice #1

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GN Docket Nos. 09-47, 09-  
51, 09-137

**COMMENTS OF CLEARWIRE CORPORATION—NBP PUBLIC NOTICE #1**

**INTRODUCTION**

Clearwire Corporation, on behalf of itself and its license-holding and service-providing subsidiaries (collectively “Clearwire”), is filing these comments in response to the Federal Communications Commission’s (“Commission”) Public Notice, which seeks comment on the definition of “broadband” for the purposes of the Commission’s development of a National Broadband Plan.<sup>1</sup> Clearwire commends the Commission for issuing its comprehensive notice soliciting comments on the elements that should be included the plan, soliciting further input through its broadband workshop series, and fine-tuning its inquiry through this *Public Notice*.

Clearwire builds and operates 4<sup>th</sup> generation (4G) wireless broadband networks that provide entire communities with high-speed residential and mobile Internet access services and residential voice services.<sup>2</sup> Clearwire operates networks in 51 markets in the United States and Europe covering approximately 18.2 million people. At the end of June 30, 2009, Clearwire had

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<sup>1</sup> *Comment Sought on Defining “Broadband” NBP Public Notice #1*, GN Docket Nos. 09-47, 09-51, 09-137, (rel. August 20, 2009)(“*Public Notice*”).

<sup>2</sup> *See* SEC Form 10-K, Clearwire Corp/DE-N/A, filed March 26, 2009 (period: Dec. 31, 2008) providing a comprehensive overview of the company for the past year.

over half of million wireless broadband subscribers. Clearwire is now deploying 4G broadband wireless service that utilizes the WiMAX technology standard in its new markets, and is converting many of its pre-WiMAX markets to the 4G standard. Clearwire's Portland, OR; Atlanta, GA; Las Vegas, NV and Baltimore, MD markets utilize mobile WiMAX technology that enables the company to offer mobile and fixed communications over a single wireless network at speeds that offer a competitive alternative to wireline broadband offerings.<sup>3</sup> Clearwire's brief comments address how the Commission can best identify mobile broadband services, including which of the inputs discussed below will best assist the Commission in its efforts to characterize the ever-evolving definition of mobile and other broadband services.

## **I. DISCUSSION**

### **a. How Should the National Broadband Plan Interpret the Term "Broadband" as Used in the Recovery Act**

#### **i. Form, Characteristics, and Performance Indicators**

In the *Public Notice* the Commission asks a series of questions concerning form, characteristics, and performance indicators to assist in its definition of broadband.<sup>4</sup> Clearwire supports the Commission's inquiry and believes that defining "broadband" appropriately is an important precursor to the Commission's efforts of bringing affordable, efficient and empowering broadband services to all Americans. It is important that the definition be discriminating enough to ensure that the services included do indeed bring truly advanced and beneficial broadband services to American consumers, but inclusive and adaptable enough to ensure that new technologies and services developed to meet specific consumer demands qualify

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<sup>3</sup> The mobile WiMAX standard is also known as the IEEE mobile Worldwide Interoperability of Microwave Access 802.16e-2005.

<sup>4</sup> *Public Notice* at 1-2.

as broadband service. This is particularly true when defining and characterizing mobile broadband services that must be technically dynamic and flexible enough to meet the mobility demands of a plethora of available service options, applications and devices.

To accomplish the Commission's goals, the definition of "broadband" should continue to be generally defined by service speeds, based on minimum thresholds. Separately identifying both mobile and fixed broadband services by speed is an objective way for policymakers and consumers alike to easily identify what they can expect to receive from a broadband service, both in terms of the types of applications they can use on that service, and how the service will perform. As technology progresses and speeds increase, broadband speed thresholds should also be updated. In addition, the thresholds should be bifurcated, or otherwise modified to account for technology specific speed variations (*i.e.*, mobile/wireless vs. fixed/wired). While speed thresholds for mobile services may be lower than some fixed broadband services due to the nature of mobile wireless technology, consumers can enjoy always-on connectivity via a mobile service, which cannot be achieved with a fixed service. Clearwire therefore supports the Commission's proposal to consider technological distinctions in defining broadband. Finally, the current speed tier structure established by the Commission in its June 2008 Order reforming the Form 477 data collection process,<sup>5</sup> provides a sufficiently granular level of measurement that accounts for all available services in the market, both fixed and mobile, and as discussed below, should continue to be the model for collecting such information going forward.

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<sup>5</sup> See *Development of Nationwide Broadband Data to Evaluate Reasonable and Timely Deployment of Advanced Services to All Americans, Improvement of Wireless Broadband Subscribership Data, and Development of Data on Interconnected Voice over Internet Protocol (VoIP) Subscribership*, Report and Order and Further Notice of Proposed Rulemaking, 23 FCC Rcd 9691, WC Docket No. 07-38 (2008)(*2008 Data Gathering Order*).

In that regard, many existing mobile broadband service offerings, such as 4G mobile WiMAX, far exceed the minimum threshold speeds the Commission currently identifies as broadband.<sup>6</sup> For instance, today's 4G mobile WiMAX wireless broadband technology is capable of delivering speeds of up to 6 mbps download and 1.5 mbps upload to customers. At a minimum, Clearwire believes that an average actual speed of 3.0 download and 768 kbps upload per end user during peak hours is an appropriate threshold for the Commission's definition of mobile broadband service. These speed levels are the minimum necessary to determine that consumers today have access to a service that is sufficiently robust to support bandwidth-intensive applications while on the move.

In determining its mobile broadband definition, Clearwire cautions the Commission against establishing new metrics as performance indicators, since like speed, the measurement of these metrics will vary across different technologies and in fact may create a misleading picture of the capabilities of a particular type of broadband service. For example, factors such as jitter and latency will differ between mobile and fixed environments. In addition, mobile broadband services will be affected by their mobile nature—actual throughput speeds customers receive via a mobile broadband service will vary from location-to-location, and from minute-to-minute. Developing performance standards to account for variation in technologies, geography, and load factors, among other metrics, would be complex, costly and most importantly, potentially misleading. Carrier quality of service information is best when it is used to guide customer choices among different providers and thousands of pricing and service options.

Clearwire urges the Commission to adopt a basic definition of broadband that is bifurcated to account for fixed and mobile broadband service speeds, but allows consumer

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<sup>6</sup> "Basic broadband tier 1" refers to services equal to or greater than 768 kbps but less than 1.5 mbps in the faster direction. *See 2008 Data Gathering Order* at fn. 66.

purchasing decisions to act as the more specific measurement of differentiation among broadband service offerings. Today there are multiple broadband service offerings, fixed and mobile, offered by multiple national and regional carriers. These services provide consumers with the option of selecting among varied features, functionalities, devices and pricing plans. As we have learned from the success of FiOS, high-speed cable services, the iPhone, and prepaid unlimited calling plans, it is difficult to predict in advance which features consumers will best respond to, and yesterday's technologies do not necessarily provide a map for the road ahead. Consumer choice, rather than a series of perhaps obscure quality of service metrics, may be best at differentiating between broadband services. Indeed, the Commission and other agencies such as the FTC should ensure, through their enforcement processes, that consumers are not misled by carriers. However, a collection of overly complicated metrics that consumers will rarely rely on for their service decisions is of limited value, may raise prices, otherwise confuse, and worst of all, be used to mislead consumers.

If the Commission nonetheless chooses to adopt performance indicators, such indicators should be measured at the local access link to the end user customer, which most closely measures the consumer's experience. Service providers, however, should not be held accountable for external factors, which are beyond their control, but may have significant impacts on network performance, such as the impact of Internet backbone inputs. Consequently, the Commission should not adopt an end-to-end definition of broadband, which may measure factors not within the control of the service provider.

## **ii. Thresholds**

In the *Public Notice*, the Commission asks for comment on three key questions related to performance indicators. These questions include: what minimum thresholds should be assigned

to the performance indicators; the minimum thresholds necessary for broad classes of applications to function properly; and whether the Commission should adopt multiple, escalating tiers of minimum thresholds.<sup>7</sup>

As noted above, the minimum speed thresholds that should be assigned for mobile broadband networks are actual speeds of 3.0 download and 768 kbps upload per end user during peak hours. However, measurement of other performance indicators, including speeds, will vary across different technologies and may create a misleading picture of the capabilities of a particular broadband service. Clearwire therefore again urges the Commission to adopt a basic definition of broadband that is bifurcated to account for fixed and mobile broadband speeds and technologies. The marketplace should then be allowed to further differentiate types of broadband services (*i.e.*, fixed vs. mobile) based upon the capabilities that a service brings to a particular consumer, rather than establishing a series of metrics that will likely be of limited value. Clearwire also encourages the Commission to continue to use the multiple, escalating tiers of thresholds that it currently employs in its Form 477 data gathering process to continue measuring speed thresholds.<sup>8</sup> As discussed below, this will allow the Commission maximum flexibility in crafting an evolving definition to fit various types of broadband technologies.

### **iii. Updates**

Finally, the *Public Notice* asks for comment on a number of questions about the creation of a more static definition of broadband that addresses the evolution of these networks. These questions include: what ongoing process should be put in place to update the definition, particularly the threshold levels; how often should such updates should occur; what criteria

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<sup>7</sup> *Public Notice* at 3.

<sup>8</sup> *See 2008 Data Gathering Order* at ¶¶ 19-20.

should be used to adjust thresholds over time; and how modifications over time to the definition will affect the Commission's ability to collect and publish meaningful data on broadband deployment and adoption.<sup>9</sup>

Clearwire urges the Commission to continue to modify its definition of broadband to address the evolution of broadband networks and technologies over time. An evolving definition, as acknowledged by the Commission in the *2008 Data Gathering Order*,<sup>10</sup> will be better adept at guiding Commission broadband policies in a technology agnostic manner. It will also assist in preventing the creation and maintenance of regulations that become antiquated and poorly fit new technologies and services, creating additional costs for providers of those services, and ultimately, consumers.

Clearwire believes that the Commission's current tiered structure, as defined in the *2008 Data Gathering Order*, encompasses a framework that adjusts to and accounts for evolving speed thresholds. For example, the Commission explicitly stated that it is "appropriate to continue to evaluate broadband deployment by monitoring the migration of customers and services to higher speed tiers . . ."<sup>11</sup> The Commission also stated that it chose not to adopt a method to adjust speed tiers automatically at the time it adopted the *2008 Data Gathering Order*, because it determined that it is "likely impracticable to construct a mechanism for updating speed tiers that can automatically adjust to all possible future technological changes."<sup>12</sup> However, the Commission also acknowledged that adjusting speed tiers may be necessary in time as technology changes. Clearwire supports the Commission's commitment to revisit the current

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<sup>9</sup> *Public Notice* at 3.

<sup>10</sup> *See 2008 Data Gathering Order* at ¶ 21.

<sup>11</sup> *2008 Data Gathering Order* at ¶ 20.

<sup>12</sup> *Id.* at ¶ 22.

speed tiers every two years, to assess whether advancements in broadband technologies warrant refinement.<sup>13</sup>

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<sup>13</sup> 2008 Data Gathering Order at ¶¶ 21-22.

## **CONCLUSION**

Clearwire respectfully submits the foregoing comments and asks that the Commission consider the views expressed herein.

Respectfully submitted,

### **CLEARWIRE CORPORATION**

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